(b) treating the workpiece by cyclically adjusting the processing parameters between at least a first step having a first set of processing parameters and a second step having a second set of process parameters; and

C1

(c) compensating for an impedance mismatch between the impedance of the power supply and the impedance of the plasma to stabilize the plasma during the transition between the first and second steps.

4. (Twice amended) A method according to Claim 1, wherein the power supply supplies RF power that is inductively coupled to the plasma.

C2

5. (Thrice amended) A method according to Claim 1, wherein the plasma is inductively formed by use of a coil which is driven by the power supply, and wherein the impedance of the plasma is matched with the impedance of the power supply using a matching unit operatively connected between the power supply and the coil.

C3

19. (Thrice amended) A method according to Claim 1, wherein said compensating for the impedance mismatch includes controlling the pressure in the

C4

chamber to inhibit variations in the impedance of the plasma between the first and second steps.

33. (Twice amended) A plasma processing apparatus comprising a chamber having a support for a workpiece, power supply means for forming a plasma in the chamber, means for cyclically adjusting processing parameters between a first and a second step, and means for compensating for an impedance mismatch between an impedance of the power supply means and an impedance of the plasma to stabilize the plasma during the transition between the first and second steps.

C5

34. (Amended) A plasma processing apparatus according to Claim 33, wherein the compensating means comprising a matching unit for matching the impedance of the plasma to the impedance of the power supply means.

C6

35. (Thrice amended) A plasma processing apparatus according to Claim 33, wherein power supply means comprises an RF power supply which generates an RF power signal, and wherein the compensating means comprises means to vary the frequency of the RF power signal.

C1